1OSOREX

Remote Irrigation Channel Water Level Monitoring

Accurate and efficient water level monitoring in remote irrigation channels is essential for sustainable agriculture, contributing to food security and environmental conservation.

CHALLENGE

The efficient management of water resources in remote irrigation channels is a significant challenge faced by farmers, governments, and water management authorities worldwide. Accurate and timely monitoring of water levels is crucial to prevent water waste, optimize water distribution, and maintain the right balance between supply and demand. Traditional methods of monitoring water levels in remote irrigation channels can be labor-intensive, costly, and often inaccurate, leading to suboptimal water management and higher costs for stakeholders.

SOLUTION

10Sorex's battery-operated Ultrasonic Distance / Level Sensor, leveraging the power of Narrowband Internet of Things (NB-IoT) technology, provides a cutting-edge solution for remote irrigation channel water level monitoring. By installing these ruggedized, IP65-rated sensors at strategic points within the irrigation channels, stakeholders can obtain near real-time water level data, which can be transmitted to a centralized management platform for analysis and decision-making.

Benefits of using this approach include:
- Enhanced accuracy: Ultrasonic distance sensors provide precise water level measurements, enabling optimal water management.
- Near real-time monitoring: NB-IoT technology allows for regular data transmission every few hours, facilitating timely decision-making.

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- Cost-effective: Battery-operated sensors eliminate the need for costly and complex power infrastructure, reducing installation and maintenance costs.
- Scalability: NB-IoT technology enables seamless integration with existing IoT ecosystems, making it easy to scale the solution to cover larger areas.
- Ruggedized design: 10Sorex sensors are built to withstand harsh industrial applications, ensuring longevity and reliability in remote environments.

By implementing this solution, stakeholders can significantly improve remote irrigation channel water level monitoring, resulting in efficient water management, reduced waste, and better agricultural outcomes.
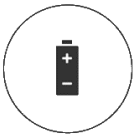
| Battery Operated | Ruggedized Design | Easy Install | Pre-Configured | Secure | Quick ROI |

TECHNOLOGY

10Sorex employs cutting-edge communication technology by utilizing the LTE Cat M1 protocol, which operates on 4G and 5G cellular networks, making it suitable for mobile and stationary monitoring applications. However, its remarkably low power consumption and superior penetration rate, specifically designed for industrial solutions, sets it apart. Narrowband Internet of Things (NB-IoT) and LTE Cat M1 are advanced communication technologies that offer significant advantages for monitoring applications. These technologies provide efficient and reliable connectivity for IoT devices, allowing for seamless communication between our sensor and remote monitoring systems. NB-IoT and LTE Cat M1 are known for their low power consumption, enabling prolonged battery life for the devices, which is crucial for remote or hard-to-reach areas. Moreover, these technologies offer excellent penetration capabilities, allowing for reliable communication even in challenging environments, such as underground or remote locations where devices are often deployed. NB-IoT and LTE Cat M1 also provide secure and scalable connectivity, enabling robust and cost-effective solutions for monitoring applications in various industrial sectors, including agriculture, utilities, logistics, and more.

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SENSOR TECHNICAL SPECIFICATION

• Range (m)	**10**	
• Accuracy (mm) (combined linearity, hysteresis, repeatability)	±5	
• Resolution	Sub mm	
• Sensor Minimum Distance (cm)	0 ~ 20	
• Process Pressure (bar)	-1 to 3	
• Frequency (GHz)	80	
• Beam angle (°)	8	
• Compensated Temperature °C	-20 ~ +60	

Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power option
• Rated Voltage (V)	3.6
• Battery Lifetime	5,000+ readings and 5,000+ transmission (With UDP protocol/ More than 10 years for most applications)

Physical Specification

• Materials	Enclosure: POM, Sensor Head: PVDF, PA6 and Fiberglass
• Weight (g)	~700
• Protection Rate (-)	IP68, UV protected

Communication

• SIM Card Type	4FF Nano-SIM, from any Network Provider
• Firmware Update	Over The Air, Locally via Wireless Connectivity
• Sampling Period	Configurable via downlink (default 4 hours)
• Power Consumption	Power Saving: < 5uA, Transmission: < 220mA
• Communication Standards	Cat-NB1 (NB-IoT), Cat-M1, (option of back support by GPRS)
• Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
• Data Rates	Cat-M1: 375Kbps (DL)/375Kbps (UL) NB-IoT: 32Kbps (DL)/70Kbps (UL)
• TX Power	23dBm
• Min Receiver Sensitivity	Cat-M1: -107dBm NB-IoT: -113dBm
• Antenna	Internal (Default)/ External (optional) (customized options available)

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PLATFORM FEATURES

10Sorex's software platform is a comprehensive and user-friendly solution specifically designed for diesel delivery management. The platform offers a wide range of features tailored for diesel delivery operations, including real-time data visualization, customizable alerts and notifications, historical data analysis, and predictive analytics. It provides users with a holistic view of their diesel delivery assets, allowing them to make data-driven decisions for optimal fuel management. The platform is accessible via web browsers and mobile devices, providing convenient remote access to critical information anytime, anywhere. 10Sorex's software platform is designed with a user-centric approach, offering intuitive navigation and a user-friendly interface for easy setup and configuration. With its advanced features and ease of use, 10Sorex's software platform empowers users to effectively monitor and manage their diesel delivery operations in remote areas, ensuring efficient and sustainable fuel resource management.

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customization available on request
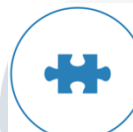
Encrypted & ultra-low power

Integrable

Dynamic alerting

Multi-tenant

Scalable

Composable & API first
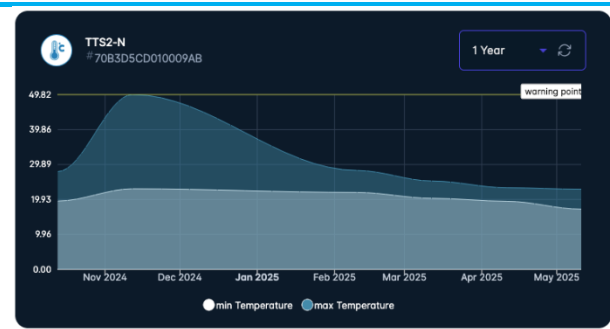
Low cost

Action management

Resource monitoring

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Single-screen visualization of device data

Easy analytic insight into long-term data

Integration-ready Webhook & APIs

Global visualization of device locations with address-level zoom
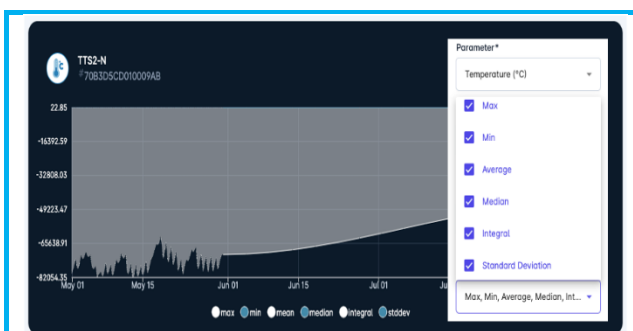
Customizable aggregations & stats

Multi-channel, rule-based alert management

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INDUSTRIES SERVED

Agriculture & Farming

INTEGRATION OPTIONS

10Sorex's solution sets itself apart with its pre-configured and plug-and-play design, eliminating the complexities of configuration, programming, and connection to the platform. This unique approach ensures that users can start monitoring their diesel tanks quickly and easily without any technical hassles. Additionally, 10Sorex offers seamless integrability at both the network and platform levels, allowing for easy integration with any network or visualization/analysis platform. This competitive advantage makes 10Sorex's solution highly adaptable and compatible with existing systems, providing users with flexibility and convenience in managing their diesel resources effectively.

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ORDERING PROCESS

10Sorex offers simple and easy way to order the solution from any location on earth with narrow band cellular coverage. Please visit our sales portal (www.10sorex.com) or contact us to discuss your application. This is the first step to experience a reliable IoT solution at scale.

🛒 Purchase the solution online

⚙️ Learn more about our Software Platform

📖 View the Included Sensor Datasheet

✔️ Browse our other solutions

Integrated IoT Solutions

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Web: www.10sorex.com